

05-0041 W911KF-05-Q-0049 ATTACHMENT (A)

ATTACHMENT (A) TECHNICAL LITERATURE

PROPRIETARY DATA NOTICE

This proposal or quotation includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or Disclosed in whole or in part for any purpose other than to evaluate this proposal or quotation. If, however, a contract is awarded to this offeror or quoter as a result of or in connection with the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets marked, "Use or disclosure of data contained on this sheet is subject to the restrictions on the title page of this proposal."



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1.0 DAYTON T. BROWN. INC. CORPORATE BACKGROUND

1.1 CORPORATE STRUCTURE

Dayton T. Brown, Inc., a veteran owned small business, is incorporated under the laws of the State of New York, is privately owned, and has no affiliates.

Established in 1950, Dayton T. Brown, Inc. is located in Bohemia, New York. The Bohemia facilities (approximately 250,000 square feet) are on a 33-acre site, five minutes from Long Island MacArthur (Islip) Airport, and approximately 55 miles east of New York City.

1.2 BACKGROUND IN THE DESIGN AND MANUFACTURE OF TEST STANDS

Dayton T. Brown, Inc. has significant experience in the design and fabrication of manual and automated Hydraulic Test Stands.

Dayton T. Brown, Inc. has designed and manufactured Test Systems for over 25 years. During this period we have designed and manufactured automated and manual motor/pump test systems, automated and manual general purpose test systems, automated servovalve test systems, high-pressure hydraulic test stands, and hydraulic power supplies.

We have delivered test systems under contracts with major military and industrial organizations including: Corpus Christi Army Depot, Corpus Christi, Texas; Kelly Air Force Base in San Antonio, Texas, McClellan Air Force Base in Sacramento, California Hill Air Force Base in Ogden Utah; Naval Aviation Depots in Norfolk, Virginia, Alameda, California and Jacksonville, Florida; Naval Air Warfare Center, Lakehurst, New Jersey; Rockwell International Corporation in Long Beach, California; Douglas Aircraft Corporation in Long Beach, California; Vickers Corporation in Jackson, Mississippi; Parker/Abex Aerospace in Oxnard, California; and American Airlines in Tulsa, Oklahoma.

1.3 PROPOSED ANNISTON HYDRAULIC TEST STAND

For the Anniston application, Dayton T. Brown, Inc. has proposed a combination of components and circuitry used on our Model LE 6000R General Purpose Hydraulic Test Stands and our Model VP5000D Pump/Motor Test Systems. Details on these items can be found on the Dayton T. Brown, Inc. web site at http://www.dtb.com/ts/ts_le6000r.asp and http://www.dtb.com/ts/ts_rotating_comp.htm.



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The proposed Hydraulic Test Stand is a manual system. Dayton T. Brown, Inc. has provided pricing for the Hydraulic Test Stand using a closed loop cooling system and alternate pricing using a once through water cooling system.

2.0 COMPLIANCE TABLE

The following table is provided to assist in the evaluation of the proposed Test Stand.

SPEC	NO		
PARAGRAPH	NO EXCEPTION	EXCEPTION	COMMENT
2.0	X		
2.0	X		
2.2	X		
3.0	X		
3.1	X		
3.1.1			
	X		
3.1.1.1			
3.1.1.2	X		
3.1.1.3	X		
3.1.1.4	X		
3.1.2	X		
3.1.2.1	X		
3.1.2.2	X		
3.1.3	X		
3.1.3.1	X		
3.1.4	X		
3.1.4.1	X		
3.1.4.2	X		
3.1.4.3	X		
3.1.4.4	X		
3.1.4.5	X		
3.1.5	X		
3.1.5.1	X		
3.1.5.2	X		
3.1.5.3	X		
3.1.5.4	X		
3.2	X		
3.3	X		
3.3.1	X		
3.3.2	X		
3.3.3	X		
3.3.4	X		
3.3.5	X		
3.3.6	X		



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SPEC	NO		
PARAGRAPH	EXCEPTION	EXCEPTION	COMMENT
3.3.7	X		
3.3.8	X		
3.3.9	X		
3.3.10	X		
3.3.11	X		
3.3.12	X		
3.3.13	X		
3.3.14	X		
3.3.15	X		
3.3.16	X		
3.3.17	X		
3.4	X		
3.4.1	X		
3.4.2	X		
3.4.3	X		
3.4.4	X		
3.4.5	X		
3.4.6	X		
3.4.7	X		
3.4.8	X		
3.4.9			
	X		
3.4.10	X		DTD has proposed a placed law shilling
3.4.11	X		DTB has proposed a closed loop chilling system. As an alternate DTB has provided alternate pricing for a once through cooling system.
3.4.12	Х		
3.4.13	Х		
3.4.14	Х		
3.4.15	Х		
3.4.16	Х		
3.4.17	Х		
3.4.18	Х		
3.4.19	Х		
3.4.20	Х		
3.4.21	Х		
3.4.22	Х		
3.4.23	Х		
4.0	Х		
4.1	Х		
4.2	Х		
5.0	Х		
5.1	X		
5.1.1	Х		
5.2	Х		



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SPEC PARAGRAPH	NO EXCEPTION	EXCEPTION	COMMENT
5.2.1	Х		
5.2.2	X		
5.2.3	X		
5.2.4	X		
5.2.5	Χ		
5.2.6	X		
5.2.7	X		
5.2.8	Χ		
6.0	X		
6.1	X		
7.0	X		
8.0	Χ		
8.1	X		DTB has proposed a two (2) year warranty period.
9.0	Χ		

3.0 HYDRAULIC REQUIREMENTS

The proposed test stand shall consist of the following major components: hydraulic system, electrical system, cooling system, and all accessories required to meet the requirements of the ANAD Specification.

3.1 SUBSYSTEMS

The test stand hydraulic system consist of the following subsystems: main system pressure circuit, auxiliary pressure circuit, static pressure circuit, supercharge (pump test) circuit, and motor test circuit. All components of the hydraulic system are suitable for use with fire resistant hydraulic oil per MIL-PRF46170C. Independent test capabilities are provided by each circuit, as described below:

3.1.1 Main System Pressure Circuit

The Main System Pressure Circuit is designed to supply conditioned, pressurized hydraulic fluid to the test circuits. The heart of the unit is a hydraulic pumping system consisting of a variable delivery, axial piston pump driven by its own 125 HP electrical motor. The pump is equipped with a remote pressure compensator control for setting the maximum delivery pressure and flows.

3.1.1.1 Flow capability up to 60 GPM and pressures up to 3000 PSIG are available through needle type shutoff valves via two (2) independent supply ports.



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- **3.1.1.2** Two (2) additional system pressure ports are provided. One (1) of the supply ports includes a shutoff valve, and the other port includes a four-way, three position, open selector valve with center port connected to the return line. The major functional difference between them is includes a directional control valve that may be used to change fluid flow direction or be used to cycle fluid supply and return. This is extremely useful for hydraulic cycling cylinders and actuators.
- **3.1.1.3** The circuit includes a system by-pass line, which is equipped with a needle type shutoff valve to control the supply pressure.
- **3.1.1.4** The Return Circuitry includes a total of three (3) return circuits one (1) return port connected to a flowmeter rated for the return flow rate, and two (2) additional separate return ports. The flowmeter has a minimum accuracy of +/-0.5 GPM for measuring flows up to 5 GPM and +/-1% FS accuracy over the entire range of the flow.

3.1.2 **Auxiliary Pressure Circuit**

- **3.1.2.1** An Auxiliary Pressure Circuit consisting of a 10 GPM flow and 5000 PSIG pump is provided for testing items which require more than one supply flow.
- **3.1.2.2** The auxiliary circuit is made up of a single port through a shutoff and a by-pass line with a needle type shutoff valve. The circuit includes a flowmeter rated for the supply flow and pressure with a +/-1 % FS accuracy over the entire range of the flow.

3.1.3 Static Pressure Circuit

3.1.3.1 An air operated pump is assembled in the system and provides static pressure up to 10,000 PSIG. The pump operates by existing facility shop air (approximately 100 PSIG).

3.1.4 Pump Test Circuit

- 3.1.4.1 This circuit is used as the hydraulic pump test system. The pump test system circuit contains the necessary instrumentation and control elements to accomplish the following tests:
- a. Basic pump operation
- b. Basic pump performance
- c. Compensator performance
- d. Pump Cycling



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The pump test system provides for regulation of the input shaft speed, inlet pressure, inlet temperature, and discharge pressure/flow.

- **3.1.4.2** The supercharge (boost) pump circuit is capable of flows to 60 GPM and variable pressures from 0 to 100 PSIG. The pump supercharge (boost) pressure is supplied by a positive displacement pumping system. The combination of the modified closed loop and high volume boost pump greatly reduces inlet pressure excursions when the test unit is cycled from full flow to shut-off.
- **3.1.4.3** The pump test circuit includes bi-directional (clockwise and counterclockwise rotation) via the AC variable speed drive and motor. The test system incorporates a variable frequency, fully regenerative, electric drive system (solid state). The system operates by generating variable frequency power to drive a precision-balanced motor. The drive motor incorporates a feedback tachometer to provide precise speed regulation. The drive is direct speed over the full speed range and does not require the use of any gearboxes and their associated support equipment. The electric motor is rated at 80 HP at the output drive shaft. The motor is rated to provide approximately 236 footpounds of torque at 1800 RPM.

Unit Under Test (UUT) adapters will be provided for each test pump. The UUT adapters include shaft seal inspection porting.

- **3.1.4.4** The speed control for the AC variable speed drive provides a variable adjustment throughout the entire speed range, with speed regulation of +/- 0.5% FS or better. Speed range for the AC Drive System is 0 to 4800 RPM in both the CW and CCW directions. The Drive System includes a front panel mounted digital speed indicator with an accuracy of +/- 0.5% FS.
- **3.1.4.5** The Drive System includes a rotary torque sensor with a speed range of 0 to 4,800 RPM and torque range of 0 to 300 foot-pounds. Torque readings are read via a front panel mounted digital indicator (including an appropriate strain gage conditioner) with an accuracy of +/- 0.5% FS.

3.1.5 Motor Test Circuit

- **3.1.5.1** The motor test circuit contains all the necessary instrumentation and control elements to accomplish the following motor testing in either direction of rotation:
- a. Basic motor operation
- b. Basic motor performance
- c. 0 RPM stall operation



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The hydraulic motor test circuit includes dynamic braking appropriately rated to provide a resistance of approximately 236 foot-pounds at 1800 RPM to the test item.

- **3.1.5.2** Motor loading for the basic performance test is accomplished with the variable frequency drive system operating in the regenerative mode. The Drive System includes a rotary torque sensor with a speed range of 0 to 4,800 RPM and torque range of 0 to 300 foot-pounds. Torque readings are read via a front panel mounted digital indicator (including an appropriate strain gage conditioner) with an accuracy of +/- 0.5% FS.
- **3.1.5.3** Both the main pump and auxiliary pump are variable delivery, pressure compensated types with volume controls located on the test stand front panel. The electric motor for the main pump shall be rated 125 HP.
- **3.1.5.4** The motor test circuit shall include a DC power supply for testing hydraulic power pack assembly part number 12282832. The power supply shall be capable of providing 24 +5/-0 volts DC at up to 62 amperes. The power supply shall contain a digital ammeter and voltmeter.

3.2 MATERIAL

All material and processes specified in Specification Paragraph 3.2 and following subparagraphs will be used as specified.

3.3 DESIGN AND CONSTRUCTION

- **3.3.1 Design** The test stand design, layout, and will facilitate ANAD high volume production of units under test (UUT) and ease of maintenance.
- **3.3.2 Structure** All components will be located within an all-metal, fully enclosed cabinet. The cabinet is designed and constructed to carry the load imposed. The cabinet will provide protection from any components that can pose a safety hazard to the operator. The cabinet is constructed to withstand transportation to ANAD by common carrier without damage. Instrument panels will be constructed of 11 gage metal while doors and panels other than instrument panels will be 14 gage metal. The cabinet is designed for indoor use and will provide protection against dust, falling dirt and dripping non-corrosive liquids.
- **3.3.3 Size** Maximum test stand cabinet dimensions will be 13 feet long by 8 feet deep by 7 feet high. The Test Stand is entirely self contained, with the exception of the external oil chiller which will be mounted outside the building.



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- **3.3.4** Base design The base is an oil tight welded assembly. Integral forklift channels will be provided on the base to facilitate shipping, positioning and moving.
- **3.3.5** Accessibility The test stand is sized to accommodate all components in an accessible manner. The test stand will allow access for an ANAD supplied overhead hoist loading/unloading heavy components into the sink. All controls for operating the test stand will be located outside the safety shield.
- **3.3.6** <u>Toe clearance</u> Toe clearance will be provided at the operator's position on the front of the test stand. Toe clearance will be 6 inches high and 4 inches deep.
- **3.3.7 Storage Space** The test stand will be provided with permanent storage space for manuals, documentation, and small tools.
- **3.3.8** Leveling Dayton T. Brown, Inc. will level the test stand as part of the installation efforts.
- **3.3.9 Work Area** A work area will be provided on the test stand. Work area is 24 inches wide by 18 inches deep.
- **3.3.10 Safety shield** Dayton T. Brown will provide a sliding door type transparent safety shield constructed of Lexan. The safety shield will extend the entire length of the test sink protecting the operator from possible hydraulic spills or inadvertent hose ruptures during tests.
- **3.3.11** <u>Vibration</u> The cabinet will be designed and constructed to prevent vibration from pumps and motors affecting the readability and accuracy of the test stand instrumentation.
- **3.3.12** Lights Vapor proof 120 volt, single phase, 60 Hertz incandescent light bulbs with guards will be provided to prevent personnel contact and inadvertent bulb breakage.
- **3.3.13 <u>Ventilation</u>** Louvered air vents will be provided in the cabinet to promote air circulation.
- **3.3.14 Work Bench/Drip Pan** Dayton T. Brown, Inc. will provide a work bench configured as a tray at the front of the test stand. The workbench will function as a sump with drain piped to the reservoir.



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- **3.3.15** Panel Holes Holes through test stand panels will be of a standard size and configuration.
- **3.3.16** <u>Timer</u> A digital timer will be provided on the front of the test stand. The timer will have a range of at least 60 minutes with 1-second increments and will include start/stop button and a reset button.
- **3.3.17 Gages** All test stand gages will be provided with a calibration port on the test stand front panel, connected between the gage and gage shut-off valve to permit calibration of the gage. Gages subject to continuous surges or extreme pressure fluctuations will be protected by snubbers or dampeners. All gages will be Bourdon tube with an accuracy of +/- 1 % FS. The gages will be sized to be readable by the operator from the test stand front panel.

3.4 ADDITIONAL REQUIREMENTS

3.4.1 Electrical The test stand is designed to operate 460 volt, three phase, 60 hertz electrical power.

All wiring methods and practices conform to:

- National Fire Protection Association (NFPA) 79-02 and NFPA 70.
- Underwriters Laboratories UL 508
- UL 508C, Standard for Power Conversion Equipment
- UL 873, Devices that regulate temperature and/or control refrigeration equipment is covered by the Standard for Temperature-Indicating and -Regulating Equipment.

All electrical wiring and components are sized for 460 VAC operations. The main electrical disconnect is supplied with the test stand. The Government shall provide 460 volt, three-phase power to the main disconnect.

- **3.4.2** Electrical noise Dayton T. Brown, Inc. has delivered numerous test stands to military depots. Our equipment designs have proven to be immune to electrical power noise typically found at these installations.
- **3.4.3** Safety and Health Requirements The test stand will be in compliance with Occupational Safety and Health Administration (OSHA) 29 CFR 1910.212. The test stand includes warning lights/indicators to alert the test stand operator to unsafe operating conditions. The test stand includes at least one category 0 (uncontrolled) emergency stop switch as defined by NFPA 79-02, which shall immediately remove



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power to the machine actuators. Hinged or sliding doors containing ready access to moving parts that may pose a hazard will be interlocked.

- **3.4.4 Noise Level** Noise emitted by the test stand will be no greater than 80 decibels as measured per ANSI S12.23-1989.
- **3.4.5 Hydraulic Test Fluid** The test stand is designed to operate with MIL-PRF-46I70C fire resistant hydraulic oil or any other petroleum based military aircraft hydraulic fluids.

3.4.6 Fluid Temperature Control

The test stand is capable of regulating the temperature of the test fluid within +/-5° Fahrenheit of the fluid temperature set point. A digital readout indicating the test fluid operating temperature is provided. The test stand temperature instrumentation is capable of displaying the test fluid temperature with an accuracy of +/- 2% of the indicated reading thru the usable range of use 80 to 180 degrees Fahrenheit.

- **3.4.7** Filtration The test stand will be supplied with standard commercial filter elements. All filters used on the test stand are equipped with gages or pressure switches to indicate the pressure drop (differential) across the filter. The test stand includes indicators to alter the operator when filters require service or replacement. Strainers, which are easily accessible for removal and cleaning, will be provided between the reservoir and inlet to the pumps.
- **3.4.8 Water Removal.** A drain valve will be provided on the bottom of the reservoir to remove any accumulated water from the hydraulic oil.
- **3.4.9 Reservoir** The test stand has a 100-gallon capacity hydraulic oil reservoir. The test stand includes a gauge for indicating the oil level in the reservoir and temperature. The test stand includes a sump and pump to capture and return to the reservoir any oil released from hoses and the component being tested during the process of disconnecting the component from the test stand. The reservoir will be accessible to allow cleaning of the interior of the hydraulic reservoir.
- **3.4.10** Hydraulic Fluid Containment The test stand is constructed using a fabricated, oil tight structural steel base weldment which is configured with an integral drip pan and sump trough capable of containing the maximum volume of hydraulic oil the test stand can hold (including oil in hoses and components under test) in case of a major fluid spill.
- **3.4.11** Cooling System The cooling of test fluid is accomplished through a standard



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commercial type oil to water heat exchanger. The cooling system is a closed loop type. Fluid cooling is achieved by routing a portion of hot oil through the heat exchanger, as required, to maintain the fluid temperature at the level preset by the operator. The portion of fluid flow through the heat exchanger is controlled via the temperature controller. The temperature control is accomplished by a 3-way diverter valve, which proportions the amount of fluid routed through the heat exchanger in response to the measured and desired fluid temperatures.

The oil side of system's internal heat exchanger is isolated from the water/ethylene glycol side. The water/ethylene glycol side removes the heat from the oil side by returning the hot mixture to the refrigerant chiller external from the system. Operating power if the refrigerant chiller is 460 VAC, 60 Hz, 3 phase.

The heat exchanger and refrigerant chiller assemblies are of sufficient size to provide the required cooling at all times when operating at a hydraulic fluid temperature in the range of 80° to 180° F. The heat exchanger is sized properly to dissipate full system horsepower using the 70°F inlet water/ethylene glycol supply from the refrigerant chiller assembly. The refrigerant chiller assembly does have the capacity to achieve water/ethylene glycol mixture temperatures below 70° F.

The refrigerant chiller assembly will be located on a concrete pad external from the test system building. Dayton T. Brown, Inc. will locate and install the require pad and interface to the facility electric and test systems internal heat exchanger assembly.

- **3.4.12** Immersion Heaters The test stand will be provided with immersion heaters. The heaters will be immersed in the fluid to a minimum depth of 6 inches when the test fluid is at its lowest operating level. The reservoir will contain an automatic over temperature shut-off switch that will automatically shut the heater(s) off at 15° F above the maximum reservoir operating temperature. The reservoir will contain a low fluid level switch that will shut down the test stand when the fluid level is less than 6 inches above the heater element(s). The immersion heater(s) are equipped with a manual temperature setting control.
- **3.4.13** Calibration Dayton T. Brown will prepare and deliver a calibration procedure that provides step-by-step instructions fully describing the calibration procedure. The procedure will include a list of all test equipment required to perform test stand calibration. All adapters and fixtures required to perform calibration will be provided with the test stand.
- **3.4.14 System of Units** The test stand will display all units of measure in the U.S. Customary System of Units.



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- **3.4.15** <u>Utilities</u> The proposed Test Stand will meet all the requirements of the Specification using the facility utilities described in the Specification.
- **3.4.16 <u>Drainage</u>** Drain lines will tie into existing sanitary, storm, or industrial waste lines if required.
- **3.4.17 Ergonomics** The test stand will be ergonomically designed to prevent the occurrence of repetitive stress injuries.
- **3.4.18 Maintainability** The test stand is constructed using commercial off-the-shelf components to the maximum extent possible to ensure the availability of repair parts. The supplied technical manuals will provide information on the normal maintenance actions required for the test stand including type of maintenance, and required interval.
- **3.4.19** Construction The test stand will be constructed of corrosion resistant material to the maximum extent possible.
- **3.4.20** Nameplate A nameplate will be attached to the test stand and will contain the following information:
- a. Nomenclature.
- b. Manufacturer's name.
- c. Serial number.
- d. Test stand model designation.
- e. Power input (volts, total amperes, phase, and frequency).
- f. Short-circuit/over current rating.
- g. Contract number or purchase order number.
- h. National stock number (if applicable).
- i. Date of manufacture.
- **3.4.21** <u>Lubrication Plate</u> A lubrication plate will be attached to the test stand. The information provided on the plate or chart will include:
- a. Points of lubricant application.
- b. Servicing interval.
- c. Type of lubricant(s) with SAE number or lubricant identifier.

In addition, all lubrication information will be contained in the Technical Manual Maintenance section.

3.4.22 Environmental Compliance The test stand will meet all applicable Environmental Protection Agency (EPA) restrictions in effect on the date of the contract.



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3.4.23 Recovered Materials Due to the nature of the test stand, it is unlikely that recovered material will be used in the construction of the test stand.

4.0 CALIBRATION

Dayton T. Brown will verify test stand calibration at the conclusion of installation, using the calibration procedure prepared for the test stand. Dayton T. Brown will provide onsite training for ANAD calibration personnel. As part of the training, Dayton T. Brown personnel will supervise and verify ANAD calibration of the test stand.

4.1 PERFORMANCE TEST

Upon completion of test stand calibration, DTB will demonstrate the test stand's ability to perform manual testing. Testing will be demonstrated on each of the components listed in Appendix I to this specification. One each of the components shall be Government Furnished Equipment (GFE) provided to the contractor during the design phase. During these tests, the DTB will demonstrate proper operation of all test stand controls, functions and features. Should a test stand malfunction or failure occur during any test, DTB will correct the problem and repeat the complete test on that component.

4.2 ACCEPTANCE

The test stand will be made available at DTB for ANAD inspection prior to shipment. The test stand will be shipped to Anniston Army Depot after inspection. Final acceptance testing will be conducted at Anniston Army Depot in accordance with paragraph 4.1. The final acceptance test will be considered successful when the assemblies of paragraph 4.1 are tested with no failures

Failure of the Units Under Test shall not be cause for rejection of the test stand.

5.0 INSTALLATION AND DELIVERY

Dayton T. Brown, Inc will deliver and install the proposed test stand in building 117 at Anniston Army Depot. Installation and all test stand acceptance requirements will be completed within 30 days. Training will be accomplished immediately after acceptance.

Dayton T. Brown, Inc. understands the test stand cannot be installed in the facility until approximately March, 2006.

5.1 DELIVERY

Dayton T. Brown, Inc. will deliver the test stand to building 117 at Anniston Army Depot. Dayton T. Brown will notify the ANAD Contracting Officer at least 14 days before the test stand is shipped.



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- **5.1.1 Shipping Handling and Storage** Dayton T. Brown will assume all responsibility for shipping, storage, and handling of the test stand and all related materials.
- **5.2 Installation** Dayton T. Brown will be responsible for installing the test stand, including all labor and materials required for the complete installation. Dayton T. Brown will ensure the installation is compatible with existing facilities.
- **5.2.1** Installation Plan Dayton T. Brown, Inc. will prepare and submit an Installation Plan 270 days after receipt of contract. The Plan will be prepared in Dayton T. Brown, Inc. format in accordance with the requirements of the Specification.
- **5.2.2 Electrical** All electrical work will be performed and comply with American National Standards Institute (ANSI) Publication C2 National Electric Safety Code and with National Fire Prevention Association (NFP A) Publication No. 70 National Electric Code. Dayton T. Brown, Inc. will utilize a licensed local electrical subcontractor to perform the connection of the test stand to ANAD facility power.
- **5.2.3 Plumbing** All plumbing work will comply with National Association of Plumbing-Heating-Cooling Contractors/American Society of Plumbing Engineers.
- **5.2.4** Concrete Dayton T. Brown, Inc. will provide a concrete pad for the oil chiller assembly located outside of the facility as close to the test stand as possible. Concrete will be provided in accordance with the specification.
- **5.2.5** <u>Trades</u> Dayton T. Brown will coordinate its trade subcontractors installing the equipment.
- **5.2.6 Foundation Hardware** All foundation hardware required for installation of the test stand is included in our bid price.
- **5.2.7** <u>Utilities</u> Dayton T. Brown will be responsible for making all test stand utilities connections.
- **5.2.8 Equipment Protection** Dayton T. Brown will make provisions to protect the surrounding shop area and equipment near the installation site from damage due to dust, debris, etc., during the installation.



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6.0 **DOCUMENTATION**

Dayton T. Brown, Inc., will provide four electronic copies of all required documentation with the test stand as specified in paragraph 6.1 herein and on the respective DD Form 1423.

6.1 CONTENT

The documentation will include the following: operator's manuals, maintenance manuals, calibration specifications/procedures, catalogs, and spare parts lists. All documentation shall be furnished in the English language.

7.0 TRAINING

Following installation and the conclusion of acceptance testing, Dayton T. Brown, Inc. will provide training at Anniston Army Depot, Anniston, Alabama. The training course will utilize the manuals provided under this contract and will include both classroom and "hands-on" portions. The target audience for this training will be mechanics, electrical and electronic technicians, calibration technicians, and mechanical and electrical engineers. The training course will be 24 hours or 3 consecutive days in duration and during normal depot working hours. The training course will include test set-ups, calibration, operation, troubleshooting, and maintenance of the equipment. The desired class will not exceed a maximum of 10 Government personnel.

All students will receive a training certificate from Dayton T. Brown, Inc. for attending the learning experience.

8.0 WARRANTY

The Dayton T. Brown, Inc, warranty period will begin the day following Government acceptance of the test stand. During the warranty period, Dayton T. Brown, Inc. all costs, including parts, labor, travel and lodging, required to complete repairs of any defects in test stand parts or workmanship. Dayton T. Brown, Inc. will respond to requests for warranty service within 48 hours after requests. Dayton T. Brown, Inc. will assist ANAD personnel in troubleshooting any potential warranty issues prior to dispatching personnel on a service call.

8.1 WARRANTY PERIOD

Dayton T. Brown, Inc. will provide a **2-year warranty** in accordance with Paragraph 8.0 above.



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ATTACHMENT (B) PAST EXPERIENCE

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PAST EXPERIENCE

1. Description: Pump/Motor Test System at OO-ALC, Hill AFB, UT

Contracting Activity: TAMSCO Contract Number: WR1470 Contract Type: Fixed Price Total Contract Valve: \$708,240

2. Description: Upgrade Pump/Motor Test System Drive Inverters

Contracting Activity: Corpus Christi Army Depot, Corpus Christi, TX

Contract Number: W912NW-04-P-0228

Contract Type: Fixed Price
Total Contract Valve: \$235,000

3. **Description:** Propulsion System Rocket Engine Test Set **Contracting Activity:** Advanced Testing Technologies Inc.

Contract Number: U036216790 Contract Type: Fixed Price Total Contract Valve: \$367,300

4. Description: Lube and Scavenge Oil Test Stand Motor Drive

Contracting Activity: Corpus Christi Army Depot, Corpus Christi, TX

Contract Number: W912NW-04-P-0571

Contract Type: Fixed Price Total Contract Valve: \$97,500

5. Description: Mobile Calibration System, MCS-6090F

Contracting Activity: OO-ALC, Hill AFB, UT

Contract Number: F42650-03-P-1025

Contract Type: Fixed Price Total Contract Valve: \$85,500